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close without expressing deep respect for this monumental work of Professor Meyer, and for the spirit which animates it.

WILLIAM MACKINTIRE SALTER.

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THE JEWS OF TODAY. ARTHUR RUPPIN. With an Introduction by JOSEPH JACOBS. Henry Holt & Co. 1913. Pp. xxiv, 310.

This is a translation of a book which first appeared in 1904, and in a second form in 1911. The author exhibits the dangers which threaten Judaism from the facility with which the Jews have always been assimilated to the environing population and absorbed in it, a process which is going on in our own time with increasing rapidity; he discusses the causes and phases of this assimilation, and the remedy, which, in his opinion, is to be found only in a re-created Jewish nationality, having a Hebrew-speaking Jewish state in Palestine as its centre. Whatever may be thought of this theory, the description of the actual conditions of the Jews in the several European countries and in America and the large body of statistics which Dr. Ruppín has compiled, make the volume instructive reading and useful for reference.

G. F. MOORE.

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THE PROBLEM OF INDIVIDUALITY. HANS DRIESCH, Professor of Philosophy at the University of Heidelberg. The Macmillan Company. \$1.00.

Is life a mechanism and nothing more? Is it possible to interpret what happens in the living body wholly in terms of physics and chemistry? Can a complete interpretation of Nature be made in terms of bodies moving in space? These are some of the many formulations of the problem of "Vitalism *vs.* Mechanism," and some of those discussed by Professor Driesch in his latest book, *The Problem of Individuality*. As those who are familiar with the earlier works of the same author would expect, the present volume is an attempt to defend the vitalistic thesis. To Driesch, as to philosophically-minded biologists generally, nature and life may be only partially interpreted in terms of mechanism. To demonstrate the truth of vitalism and the inadequacy of the mechanistic hypothesis Driesch in the present volume uses both inductive and deductive methods of reasoning.

The author finds the fundamental problem of vitalism presented by the phenomena of embryology, regeneration, and adaptation—

all of which tend towards *wholeness* in the individual. "Is organic individual wholeness produced on the basis of a machine, *i.e.*, by processes which, though arranged in a special given manner are in themselves inorganic processes, as known from physics and chemistry; or are there in the organism whole-making processes *sui generis*, *i.e.*, processes not reducible to the forms of inorganic becoming?" Driesch accepts the second alternative, and advances three inductive proofs to support the conclusion that a non-physical, non-spacial directive agency which tends towards wholeness operates within the living organism. In his first argument he lays special stress upon the remarkable results of experiments upon the eggs of lower animals and upon the Ascidian *Clavellina*. If the blastula stage of such an animal as the sea-urchin be cut in any direction, it will grow—provided the fragment be not less than one-quarter the size of the whole blastula—into a complete organism, just as if it had not been cut at all. Similarly, if the branchial apparatus of *Clavellina* be cut into two pieces in any direction whatever, each piece will grow into a complete *Clavellina*.

Driesch argues that were an organism constructed on the principle of a machine, such growth—or restitution—making for wholeness would be impossible. Fragments of a *machine* could not of themselves restore the missing parts of the machine nor do what the entire machine could do. The experiments on the blastulæ appear to Driesch to indicate that at this stage of development the organism is not differentiated in the three dimensions of space. But the adult organism which develops from the blastula—or from fragments of the blastula—is so differentiated. Since it seems to Driesch that the determination of this result could not have been internal or mechanistic, he concludes that in the processes of development and of regeneration of lost parts—processes which make for the integrity of the individual—some agency is at work which is not of the type of chemico-physical agents.

This first proof of vitalism sounds very plausible if it be assumed that there is nothing mechanistic or machine-like within the fragments of the blastula or the branchial apparatus. The difficulty with Driesch's first proof of vitalism is that his premise is notoriously weak. In maintaining it as a valid argument in the year 1914, he wholly ignores the evidence of definite organ-forming substances in the cells of blastulæ as well as the evidence that the cells of organisms possess in their nucleus a structure which may, and probably does, mechanically determine their development. It has been experimentally shown that a particular alteration in the substance

of the nucleus of an egg effects a definite alteration in the organism which develops from the egg. The more recent experiments in embryology and regeneration strongly support the mechanistic hypothesis.

Driesch's second independent proof of vitalism is based on the fact that the egg from which the organism develops is formed within the ovary as a result of thousands of repeated cell-divisions. He regards this fact as evidence that the organism cannot be pre-formed machine-like within the egg. "How could a machine be divided and divided—and *always remain the same?*" He concludes that the ovarian eggs are essentially undifferentiated. How then can an organism, obviously differentiated in the three dimensions of space, arise from such an egg? Since he finds no evidence of structural or mechanistic determination of such a remarkable result, Driesch concludes that it is necessary to postulate some non-mechanical, directive agency to which he gives the Aristotelian name *entelechy*. The objections to the second proof are the same as those already stated against the first and it is not necessary to repeat them. The one who raises such objections, however, if he be open-minded, cannot help admitting that the precise way in which the nucleus mechanistically determines the development of the egg is wholly obscure. But it is well known that ferments or hormones may effect amazing results in a *living* body.

The third proof of vitalism is found by Driesch in the phenomena of instinctive action and of intelligent behavior. The main feature of instinctive action is the fact that it is not based on experience but is "perfect in its manifoldness *the very first time it occurs*, just like regenerations." It is not a little surprising that while most biologists regard the definiteness and limitation of instinctive action as a reason for regarding the organism as a mechanism, Driesch draws precisely the opposite conclusion, viz., that instincts prove that the organism is not merely a machine. In intelligent action the organism does not merely repeat mechanically past experience like a phonograph. The significant fact is that it uses and utilizes its past experiences and therefore shows itself more than a machine. Man is "master of his personal history." In his behavior "nothing is fixed in the sense of what fixation means in anything like a machine." To the reviewer this assertion sounds rather optimistic, but it may readily be granted that an interpretation of human action in terms of mechanism alone is inadequate.

Driesch's *entelechy* is neither a property of matter nor a form of energy. Neither is it intellect nor soul. *Entelechy* is assumed to

operate, sometimes by suspending and making potential transfers of energy in the living system, sometimes by relaxing its suspensory action so as to allow chemical or physical events to occur. Since by such operation the total amount of energy in a given system would be neither increased nor diminished, entelechy would not violate the principle of the conservation of energy.

Since, however, through the operation of entelechy upon physical and chemical processes in the organism it would not be possible to predict from a knowledge of the physical conditions *alone* just what would follow any particular change of conditions, the practical result of the action of entelechy would be experimental indeterminism. Therefore Driesch postulates experimental indeterminism but still holds to absolute determinism. How entelechy might act under definite conditions could be foretold on the basis of previous experience, but predictions would not have the same certainty as in the case of events in the non-living world.

Driesch regards the logic of vitalism as a branch of the logic of *wholeness*. He assumes as an axiomatic principle that "the degree of manifoldness of a natural system cannot increase from itself," since the conclusions must be implicit in the premises. But a living system may pass from one state to another which is more complex. In such a process an arrangement which is a mere sum is transformed into an arrangement of the character of unity or totality of some kind. There is no logical necessity for assuming a machine-like preformation as a prerequisite for such an increase in complexity in the system, which is effected by a rearrangement of the component elements through the agency of entelechy, which thus acts as "unifying causality."

The author attempts to bring his vitalistic doctrine into conformity with the Kantian system by asserting that wholeness or individuality is a category as valid as those recognized by Kant and his followers.

Wholeness is manifested not only by the biological individual but also by the race, and therefore Driesch is led to postulate a supra-personal kind of entelechy that realizes itself in space in the phylogenetic or historic process, just as personal entelechy realizes itself in ontogeny. The existence of a supra-personal unity, however, is attested by the existence of moral consciousness in man more than by anything else.

May nature be regarded as *one ordered whole*? Driesch finds in the existence of "laws of nature" evidence of wholeness in nature. But he is unable to accept the Spinozian dogma of the union of a

universal teleology and mechanism. Not every character of the Absolute has a spacial symbol. However, from our piecemeal experience we can never say whether there be not a monism of order in the Absolute. We simply "know in part," as St. Paul says.

While a monism of order is not altogether impossible, Driesch is compelled to accept the dualistic doctrine in spite of all logical postulates. "The Absolute is in any case such as to possess properties which at least in part are not symbolized to the human mind in spacial symbols." "What is not a mere belief and not a matter of feeling is the existence of factual wholeness in nature, the existence of something that is certainly more than a mere sum. And to have proved this, and thus to have given a sound foundation to all further speculations about natural and metaphysical *wholeness*, is the merit of vitalism."

Since *The Problem of Individuality* is itself a summary of the views of Professor Driesch concerning the science, logic, and philosophy of vitalism, it is impossible to do justice to the argument advanced by Driesch in a brief review. The book will interest the philosophical thinker as well as the biologist as the expression of a highly original and independent investigator in the field of vitalism. Whatever may be the merits of the inductive or the deductive argument of Driesch, most will agree with him that life includes more than is dreamed of in the materialistic philosophy. To have emphasized this in departments of thought and investigation where materialistic assumptions prevail is one of the great services of such men as Driesch and Bergson.

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CRIME AND ITS REPRESSION. GUSTAV ASCHAFFENBURG. Translated by ADELBERT ALBRECHT. Little, Brown, & Co. 1913. Pp. xxvi, 331.

Gustav Aschaffenburg is known to American psychologists as the former assistant to Kraepelin in the psychiatric laboratory at Heidelberg, and to American criminologists as the editor of the *Monatsschrift für Kriminalpsychologie und Strafrechtsreform*. He is known popularly through the experiment which he performed at Cologne upon type-setters, testing the amount of work accomplished with and without "moderate" dosage of alcohol. This experiment is frequently quoted by the Scientific Temperance Federation and the Poster Committee of the Boston Associated Charities.

This volume, *Crime and its Repression*, was first published in 1903 under the title *Das Verbrechen und seine Bekämpfung*. It